

**Directions *for* Adjusting  
Lead and Rule Mold  
Operating Attachment  
and Automatic Cutter**

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FOR OPERATING CONTINUOUS  
STRIP MOLDS AND AUTOMAT-  
ICALLY CUTTING THE PRODUCT  
TO ANY LENGTH FROM SIX  
PICAS TO TWENTY-FIVE INCHES

PHILADELPHIA  
LANSTON MONOTYPE MACHINE CO.  
1917



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PART IV—THE MONOTYPE CASTING MACHINE

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TRADE MARK  
**MONOTYPE**  
Reg. U. S. Pat. Off.

## Directions for Adjusting Lead and Rule Mold Operating Attachment\*

**1 CAUTION:** If the parts for Lead and Rule Casting, including the MOLD, are not in position, they must be so placed in accordance with "Directions for Changing from Composition to Rule Casting," as described in ¶41 and following before continuing with the following directions:

**2 Micrometer Wedge and Stand.** OBJECT: To regulate the stroke of the MOLD BLADE.

**3** If a  $\frac{3}{4}$ " stroke is required, use the left-hand hole **T** of the rod at the right-hand end of the STAND **U**. If a  $\frac{1}{2}$ " stroke is required, use the right-hand hole **S** of the two at the right-hand end of the STAND **U** for the SCREW, as shown in Fig. 1.

**4** A finer adjustment of the stroke (for example, to make the junction of the face of a rule coincide with the junction of the body) is obtained by raising or lowering the MICROMETER WEDGE by means of its ADJUSTING SCREW **H**. This adjustment is made at the start of a cast from an examination of the product (¶55).†

**5 Spring Box.** OBJECT: That the MOLD BLADE will bear evenly against its STOPS at each end of its stroke.

**6** With the NUTS **A** and **D** backed off, turn the machine to 90°. Adjust the NUT **A** on the left end of the SPRING-BOX-SPRING ROD **C** to give  $\frac{1}{16}$ " compression on the SPRING. This compression is measured by the amount the SPRING ABUTMENT, against which the NUT **A** abuts, is moved to the right by the NUT **A**;  $\frac{1}{16}$ " compression will bring the face of the ABUTMENT about flush with the end of the SPRING BOX. Lock the NUT **A** with its LOCK NUT.

**7** Turn the machine to 220°. Adjust the NUT **D** on the right end of the SPRING-BOX-SPRING ROD **C** to give  $\frac{1}{16}$ " compression on the SPRING. This compression is measured by the amount the SPRING ABUTMENT, against which the NUT **D** abuts, is moved to the left by the NUT **D**;  $\frac{1}{16}$ " compression will bring the face of the ABUTMENT about flush with the end of the SPRING BOX. Lock the NUT **D** with its LOCK NUT.

**8** If it is impossible to make these compressions  $\frac{1}{16}$ ", the AUXILIARY-BRACKET CLAMP BOLT **Y** and the ADJUSTING SCREW **Z** will have to be adjusted to swing the BRACKET **B** slightly one way

\* NOTE: All references in the following to "front," "rear," "right" and "left" assume operator standing in front of and facing the machine. See the direction arrow on each part. The Gothic letters designating the parts in this chapter refer to Fig. 1 except where otherwise noted.

† NOTE: The equipment to accompany MOLDS Nos. 2 to 7 inclusive had (in place of the MICROMETER-WEDGE STAND just described) a MOLD-BLADE-ABUTMENT ADJUSTING BLOCK which takes the position of the left BRIDGE foot and is held by one of the regular BRIDGE SCREWS. The adjustment for length of stroke with this arrangement is obtained by means of the ADJUSTING SCREW in this BLOCK.



or the other to give the required compression. The BRACKET B should be kept as nearly horizontal as possible.

9 When changing from  $\frac{1}{2}$ " stroke to  $\frac{3}{4}$ " stroke or vice versa it is necessary to readjust the NUT D on the right of the SPRING BOX, and when changing MOLDS the adjustment of the NUTS on both ends should be tested.

10 **Clamping-screw Connecting Rod.** OBJECT: To clamp the TYPE BLOCKS against the cast product while making the next cast and to release them for ejecting.

11 Connect the CLAMPING-SCREW CONNECTING ROD J to the LEVER P on the MOLD. Adjust the NUT K on the upper end of this ROD so that there is  $\frac{1}{16}$ " compression on its SPRING L when the CENTERING-PIN LEVER E is at the bottom of its stroke with the MOLD heated up and the machine running at 120 r.p.m. Watch this adjustment carefully, because if the CLAMPING LEVER P works down (§12) this compression will be lost (§13).

12 The outer end of the CLAMPING LEVER P on the front of the MOLD should be between the horizontal and  $\frac{1}{8}$ " below horizontal when this setting is made. If it is not, note how much it needs to be turned in either direction to correct it. Turn the machine until the CENTERING-PIN LEVER is at the top of its stroke, loosen the LOCK NUT to free the CLAMPING LEVER, and, holding the CLAMPING SCREW from turning, swing the CLAMPING LEVER to the right or left as required and lock it with the LOCK NUT. Now test again the clearance beneath the NUT K on top of the CLAMPING-LEVER CONNECTING ROD as described above.

13 If through wear or loosening of this adjustment the compression on SPRING L becomes less than  $\frac{1}{16}$ ", readjust to make it  $\frac{1}{16}$ ". If the moving end of the LEVER P on the front of the MOLD works down so that at the bottom of its stroke (machine running at 120 r. p. m.) it is more than  $\frac{1}{4}$ " below the horizontal, it must be readjusted.\*

14 From this point ¶49 is a continuation of the adjustments for casting. If the Automatic Cutter is to be adjusted see the following:

\* NOTE: Equipment to accompany MOLDS Nos. 2 to 7 inclusive had on the CONNECTING ROD a short SPRING with a SLEEVE beneath it. The length of this SPRING is adjustable by means of two NUTS below the SLEEVE and should be adjusted (after the preceding adjustment) so that when the CENTERING-PIN LEVER is at the bottom of its stroke the length of this SPRING is  $\frac{1}{4}$  inches.

## CHAPTER II

### Directions for Adjusting Automatic Cutter Mechanism\*

**15 Thrust-bar Operating Rod.** OBJECT: To insure the proper engagement of THRUST BAR **P** by the CAM LEVER **S**.

**16 CAUTION:** If CONNECTING ROD adjustment (§21) has not been previously made, remove PIN **U** before proceeding.

**17** Trip the THRUST BAR **P** (so that it is in its front position) by pulling the SHEAR-BLADE-SHOE TUBE **E** to the right by hand. Turn the machine until the SHEAR-CAM LEVER **S** has pushed the THRUST BAR **P** all the way down. *The machine is kept in this position for this and the next two adjustments.* Adjust the length of the THRUST-BAR OPERATING ROD **N** by screwing it in or out of its EYE **Q** so that the CAM LEVER **S** rests in the bottom of the fillet of the THRUST BAR **P**.

**18 Thrust Bar.** OBJECT: To transfer leads or rules to the STACKER PLATE **W**.

**19** Have the machine in the position described in §17, that is, with the THRUST BAR **P** tripped (in its front position) and the machine turned until the SHEAR-CAM LEVER **S** has pushed the THRUST BAR **P** all the way down. Adjust the length of the THRUST BAR **P**, by means of its two NUTS **O**, until the ends of the PUSHERS **F** project  $\frac{1}{16}$ " in front of the front face of the REAR BAR **B**. Be sure that the THRUST BAR **P** is not jammed between the SHEAR-CAM LEVER **S** and the SHEAR BELL CRANK **M**; that is, see that the front end of the SHEAR BELL CRANK **M** can be pressed down to give clearance between the CAM LEVER **S** and the THRUST BAR **P**. If this clearance does not exist, the NUTS **O** must be adjusted until there is a slight clearance; this may position the PUSHERS **F** so that their ends are slightly less than  $\frac{1}{16}$ " in front of the front face of the REAR BAR **B**, as just described.

**20 CAUTION:** When tightening the LOCK NUTS **O** be sure not to turn the THRUST BAR **P** about its vertical axis and thereby jam the OPERATING ROD **N** in its guide—or break it.

**21 Connecting Rod.** OBJECT: To stack leads or rules.

**22** Remove the PIN **U** from the upper EYE **T** of the CONNECTING ROD **R**. Have the machine in the position described in §17, that is, with the THRUST BAR **P** tripped and the machine turned until the SHEAR-CAM LEVER **S** has pushed the THRUST BAR **P** all the way down. Turn the STACKER ROCK SHAFT **I** over toward the rear until its lug is up against its stop. Make the length of the

\* NOTE: All references in the following to "front," "rear," "right" and "left" assume the operator standing in front of and facing the machine. See the direction arrow on each figure. The Gothic letters designating the parts in this chapter refer to Fig. 2 except where otherwise noted.

CONNECTING ROD **R** such that its PIN **U** can be inserted freely through the EYE **T** with the parts in the position described.

**23 CAUTION:** Be sure the PIN **U** enters the EYE **T** and the hole in the lug on the ROCK SHAFT **I** freely; never force it in.

**24 Shear Bell Crank.** OBJECT: That the SHEAR BLADE will not interfere with the leads or rules entering the channel.

**25** With the THRUST BAR **P** in its upper position, adjust the SHEAR BELL CRANK **M** by means of its ADJUSTING SCREW **L** so that when the SHEAR BLADE **K** is pushed forward with the fingers to take up all play it just clears the rear side of the rule passage. With the parts in this position make sure that the THRUST BAR **P** will pass under the SHEAR-CAM LEVER **S**. If the THRUST BAR **P** will not pass under the SHEAR-CAM LEVER **S**, readjust it (§17) until it will do so.

**26 Transfer Bars.** OBJECT: That the TRANSFER BARS will open wide enough to clear the product as it comes from the MOLD and to grip it tight while transferring it to the STACKER PLATE **W**.

**27** Adjust the SCREW **J** so that the distance between the TRANSFER BARS **B** and **C** is just slightly greater than the size of leads or rules being cast. *This adjustment must be made for each change in point-size of product.*

**28 Guide Roller.** OBJECTS: (a) To make leads or rules straight; (b) to make the ends of short lengths square.

**29** To make the product straight, cast two long lengths of the product for which the machine is adjusted. Lay them on the Galley, foot to foot. If the feet do not touch throughout their length, the GUIDE ROLLER **N** (Fig. 1), which is on an eccentric, must be readjusted by means of the ROLLER-SHAFT HANDLE **M** (Fig. 1). Continue comparing two lengths of the product and adjusting the ROLLER **N** until the leads or rules are straight. This test should be made each time a MOLD is changed, and on long, continuous casting this test should be made frequently.

**30** To make the ends of short leads square, stand two on end on a flat surface, foot to foot. If the feet do not touch throughout their length, readjust the GUIDE ROLLER, cast new pieces and test again.

**31 Support.** OBJECT: To support long lengths of the product.

**32** Adjust the SUPPORT **D** so that the leads or rules will just slide over and be supported by its top face. This gives a support\* to the right end of the leads or rules and prevents their bending from their own weight.

**33 Length of Lead or Rule.** OBJECT: To obtain any length of lead or rule from 6 picas to 25" inclusive.

**34** Loosen the CLAMP SCREW **H** and slide the COLLAR **G** to the right or left on the TUBE **E** until the STOP, against which the lead or rule strikes, is the required distance (as measured by a gage) from the cutting edge of the SHEAR BLADE. Tighten the CLAMP SCREW **H**.

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\* NOTE: Some of the earlier Attachments did not have this SUPPORT.



**35** Always use the STOP to the left of the COLLAR except when the lead or rule is too long (see following Caution), then it is necessary to use the STOP to the right of the COLLAR.

**36 CAUTION:** When casting long leads or rule be sure that when the lead or rule has pushed the STOP as far to the right as possible there is at least  $\frac{1}{32}$ " clearance between the STOP and the right-hand GUIDE **A** of the TUBE **E**.

**37 CAUTION:** Never cut leads or rule any length less than twice the stroke of the MOLD BLADE. For example, if casting with a  $\frac{3}{4}$ " stroke of the MOLD BLADE, and leads  $1\frac{1}{4}$ " long are desired, the MICROMETER WEDGE must be changed to give length of stroke  $\frac{1}{2}$ ". (See ¶3 of these directions, also ¶1 of "Directions for Care and Cleaning Lead and Rule Molds.")

**38 Box for Short Lengths.** For leads or rules not long enough to stack use the BOX furnished with the Attachment. Disconnect the CONNECTING ROD **R** and attach the BOX to the STACKER PLATE directly under the SHEAR BLADE.

**39 Guide for Two-point Product.** OBJECT: To prevent buckling of two-point product.

**40** The GUIDE PLATE **O** (Figure 1) is provided for this purpose. It is positioned by hooking its left end over the FRICTION-BLOCK ADJUSTING SCREW **Q** (Fig. 1) on the MOLD and resting its right end on the GUIDE ROLLER **N** (Fig. 1). Some of the earlier attachments did not have this GUIDE PLATE, but, instead, had an ADJUSTING SCREW and a GUIDE SPRING. To adjust this GUIDE SPRING, back off the ADJUSTING SCREW until the GUIDE SPRING touches the lead or rule. Screw in the ADJUSTING SCREW until it touches the GUIDE SPRING, then give it one-quarter of a turn more.

## Directions for Changing from Type Casting to Lead and Rule Casting\*

**41 Remove the following:** BRIDGE; both TYPE CHANNEL BLOCKS; TYPE CARRIER with EXTENSION, CONNECTING ROD, and SHOES; TYPE PUSHER and GUIDE; BRIDGE-LEVER CONNECTING LINK; PISTON; PUMP BODY; GALLEY-PAN SUPPORT complete. On a composing machine remove also PIN-JAW-TONGS SPRING complete and its LINKS; disconnect the LOCKING-BAR CAM LEVER.†

**42 Put in place the following:** The special PUMP BODY and its special NOZZLE should first be put in the MELTING POT to heat up. When they are hot, insert the PISTON (also hot) furnished with the Attachment. (This PISTON is the same as the standard PISTON and is furnished special with this Attachment to insure a close-fitting PISTON—use it only with this Attachment.)

**43 Swing MOLD-BLADE OPERATING BAR V** from top of CENTERING-PIN LEVER E (where placed when not in use) into operating position (see Fig. 1). On a composing machine swing the front PIN-JAW-TONGS-SPRING BELL CRANK to the front, or remove it entirely, to clear these parts.‡

**44 Put the CENTERING-PIN-LEVER BRACKET G** on the CENTERING-PIN LEVER from underneath and tighten the C CLAMPS F.§

**45 Turn the machine to 15°.** If the Attachment has not been adjusted, back off the SPRING-ROD ADJUSTING NUTS A and D before attempting to put on the MOLD. Take the MOLD R in the right hand and pull its BLADE to the left as far as it will go, raise the right end of the MOLD-BLADE OPERATING BAR V and put the lug

\* NOTE: All references in the following to "front," "rear," "right" and "left" assume the operator standing in front of and facing the machine. See the direction arrow on each figure. The Gothic letters designating the parts in this chapter refer to Fig. 1 except where otherwise noted.

† NOTE: In addition to above parts the TYPE-CARRIER-CAM-LEVER EXTENSION must be taken off machines equipped with the older style SPRING BOX arrangement where the SPRING BOX is direct connected with the MOLD-BLADE OPERATING BAR.

‡ NOTE: On machines where the SPRING BOX is direct connected to the MOLD-BLADE OPERATING BAR, screw the MOLD-BLADE OPERATING BAR, for the Attachment on to its EXTENSION in the SPRING BOX and lock it with its LOCK NUT so that the lug on the right end of the BAR will be to the front. Put these parts in position on the machine with the CAM-LEVER EXTENSION X, on the SPRING BOX, in the end of the TYPE-CARRIER-CAM LEVER where the regular EXTENSION was. Screw the regular EXTENSION ADJUSTING BOLT into the lower end of the new EXTENSION to draw the new EXTENSION down so that its shoulder is solid on the top of the CAM LEVER and lock the ADJUSTING SCREW with its LOCK NUT. Tighten the CAM-LEVER-EXTENSION CLAMP BOLT W taking care that the EXTENSION is not swung sideways so as to spring the MOLD-BLADE OPERATING BAR out of place.

§ NOTE: For machines equipped with the older style of CENTERING-PIN-LEVER BRACKET for use with the older style MOLDS having the short CLAMPING LEVER on the front of the MOLD, put the BRACKET on the CENTERING-PIN LEVER from underneath, slipping it onto the CENTERING-PIN-LEVER STUD. Swing the BRACKET EYE BOLT up into the slot in the right end of the CENTERING-PIN LEVER and tighten its WING NUT. Put the rear BRACKET CLAMP in position so that tightening its NUT clamps the rear arm of the CENTERING-PIN LEVER (be sure the countersink in the front end of this CLAMP fits over its bearing or the CLAMP will bind). It will be necessary to swing the GAG BLOCK b36B1B, if on the machine, out of the way of the BRACKET.

on it into its hole in the MOLD BLADE; lower the MOLD R and the OPERATING BAR V into position. Put on the regular MOLD CLAMPS. Use the regular MOLD SCREWS for the front and left SCREWS, and for the rear right SCREW use the special SCREW (furnished with the Attachment) which is longer than the regular SCREW. CAUTION: Never use this special MOLD SCREW with other MOLDS, as it would bottom in the MOLD and spring the BLOCKS.\*

**46** Turn the machine over until the MOLD BLADE is at the right end of its stroke. Put the MICROMETER-WEDGE STAND U on the machine in place of the TYPE-CARRIER SHOES. In the right of the STAND U are two screw holes—use the right-hand one (as shown in Fig. 1) for the half-inch stroke of the MOLD BLADE and the left-hand one for three-quarter-inch stroke; the screw holes in the left end of the STAND U take care of this movement of the STAND (see Fig. 1). The fine adjustment for the stroke of the MOLD BLADE is obtained by means of the MICROMETER SCREW H.†‡

**47** Connect the CLAMP CONNECTING ROD J to the LEVER P on the front of the MOLD. The adjustment of the NUTS on the upper end of this ROD J should never be broken—if it is, see ¶10 to ¶13 for directions for adjusting.§

**48** *If the attachment has not been previously adjusted as per directions for adjusting Lead and Rule Mold Operating Attachment (¶1 and following), do so at this point.*

**49** Throw in the LATCH to compress the PISTON SPRING and release it suddenly the same as for display type. All the other settings of the PUMP are to be the same as for running on composition.\*\*

**50** Set the Speed Regulating Attachment to give the required speed. (See ¶14 of "Directions for Care and Cleaning Continuous Strip Lead and Rule Molds.")

**51** Turn on the water and regulate it to give a maximum through the MOLD with a very little through the MAIN STAND of the CASTING MACHINE.

**52** Turn the machine over by hand (with PUMP locked out) to see that everything is working correctly.

\* NOTE: On machines where the SPRING BOX is direct connected to the MOLD-BLADE OPERATING BAR, have the machine turned so the MOLD-BLADE-OPERATING-BAR SPRING BOX is about midway of its stroke, pull the MOLD BLADE to the left as far as it will go and continue as above.

† NOTE: The equipment to accompany MOLDS Nos. 2 to 7 inclusive had (in place of the MICROMETER-WEDGE STAND just described) a MOLD-BLADE-ABUTMENT ADJUSTING BLOCK which takes the position of the left BRIDGE foot and is held by one of the regular BRIDGE SCREWS. The adjustment for length of stroke with this arrangement is obtained by means of an ADJUSTING SCREW in the BLOCK.

‡ NOTE: On machines where the SPRING BOX is direct connected with the MOLD-BLADE OPERATING BAR, adjust the SPRING BOX by means of the NUTS at either end on the EXTENSION ROD passing through the SPRING BOX in a manner similar to that described for later machines in ¶7 to ¶9.

§ NOTE: On machines equipped with MOLDS having the short CLAMPING LEVER screw the CLAMP CONNECTING ROD (which corresponds to J, Fig 1), as far as it will go into the CLAMPING-LEVER BALL SOCKET on the end of the CLAMPING LEVER on the MOLD, using the two NUTS on the upper end of the ROD to turn it, and lock it with its LOCK NUT on the lower end. Equipment to accompany MOLDS Nos. 2 to 7 inclusive had on the CONNECTING ROD a short SPRING with a SLEEVE beneath it. The length of this SPRING is adjustable by means of two NUTS below the SLEEVE. This adjustment should not be broken—if it is, see the note at the foot of page four. Equipments to accompany MOLDS No. 8 and following have a longer SPRING, omit the ADJUSTING NUTS and, therefore, do not have this adjustment.

\*\* NOTE: Sometimes on two-point product this LATCH is not required.

**53** The PORT SCREW in the PUMP BODY is to be screwed way up to give a full cast of metal in the MOLD (a partial or imperfect cast might cause a squirt). If, after starting to cast under power, it stops casting, or squirts at the NOZZLE, screw down on the PORT SCREW a little at a time until the NOZZLE frees itself, the PISTON stroke begins to lengthen, and a perfect continuous cast is obtained.

**54** Throw in the PUMP and turn the machine over once or twice by hand to see that everything is working correctly before throwing over the STARTING LEVER.

**55** Test the setting of the MOLD-BLADE MICROMETER WEDGE I by breaking some of the rule to see if the junction of the face coincides with the junction of the top of the body. If this is not correct, adjust the MICROMETER WEDGE I by means of its ADJUSTING SCREW H to bring the junctions of the rule in the desired relation.

**56** CAUTION: In drilling the special NOZZLE for the RULE MOLD use the same drills as for composition NOZZLE. That is, No. 50 drill from the top and No. 30 drill from the bottom. The upper end of the hole in the NOZZLE is tapered—do not drill up far enough to destroy this taper; the No. 30 drill should go in  $1\frac{1}{8}$ " only.

**57** CAUTION: Be sure when changing back to composition or to display type casting to take out the PUMP used for rule casting and replace it with the regular PUMP. The NOZZLE is in a different position on the PUMP used for rule casting from what it is on the standard PUMP.

Plate 11 is a separate document  
because of its larger size.

**Lead-and-Rule  
Casting  
Attachment**

Plate 12 is a separate document  
because of its larger size.

**Automatic  
Cutting  
Attachment**